

## Five Steps to Healthy Roses

1. Plant roses in full sun.
2. Use drip irrigation or soaker hoses.
3. Water in early morning.
4. Selectively prune to open canopy and increase air circulation.
5. Manage weeds and insects to prevent the spread of viruses.



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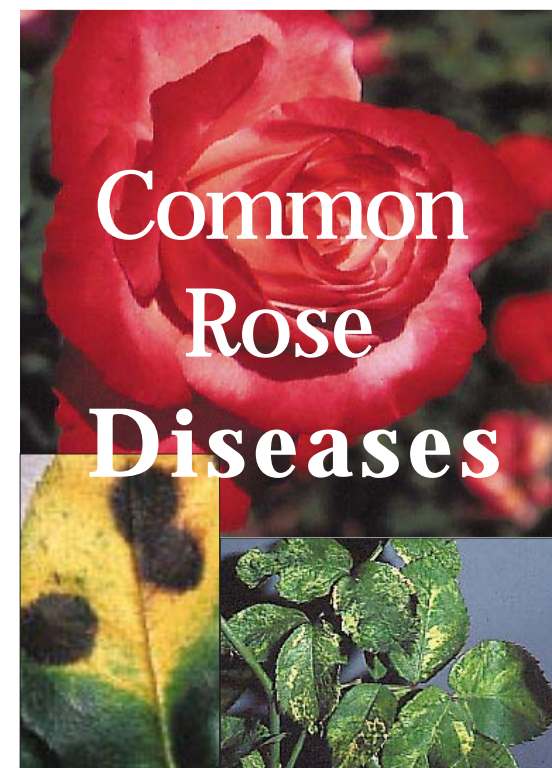
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## Black Spot

Rose varieties differ in their susceptibility to black spot fungus. While many newer varieties were screened for disease resistance, some older varieties and antique roses are also somewhat resistant. However, many hybrid tea roses are susceptible.



### Symptoms

Affected leaves have black spots with fringed edges. Leaves may turn yellow. Severe infections cause leaves to drop prematurely. Repeated defoliation stresses the plant, making it more susceptible to insect problems and other diseases.

### Management

- Prune damaged or infected canes.

The black spot fungus over winters on canes. Careful pruning removes damaged or infected canes and slows disease development.



#### •Keep leaves dry.

The fungus requires leaf wetness to cause infection. So keep leaves dry by:

- Planting roses in full sun.
- Using drip irrigation or soaker hoses.
- Watering in the early morning.

#### •Apply fungicides.

Susceptible roses will need fungicide applications during times of favorable environmental conditions. During spring and fall, when rains are more frequent and cool temperatures form dew, many roses - even those with some resistance - will probably need to be sprayed.

## Powdery Mildew

Powdery mildew is also caused by a fungus. While black spot is a problem in the spring and fall, powdery mildew can be a problem spring, summer and fall.

### Symptoms

Whitish patches appear on infected leaves. The leaves may pucker in some varieties.



## Management

Powdery mildew fungus doesn't need leaf wetness to cause infection, but it does need high humidity at the leaf surface.

Reduce the humidity by:

- Planting roses in full sun.
- Watering in early morning.
- Selective pruning to open the canopy and increase air circulation.

Fungicide application may be necessary for susceptible rose varieties.

## Viruses

Viruses are often spread by insects such as leaf hoppers, or through graft unions. *There is no chemical for virus control.*

### Symptoms

Leaves are mottled yellow and green. Leaves may be crinkled, puckered or distorted. Symptoms are easiest to see on new leaves.



### Management

Remove infected plants because they are the source of the virus for insects to spread to other roses. Weed control is important because weeds can serve as a reservoir for the virus and a home to insect vectors.